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AUTHOR Kelly, John S.: Gambatese, Richard J.
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ABSTRACT

Previous studies have shown that the use of behavior modification techniques, specifically the use of token reinforcement systems, can produce positive changes in the behavior of heroin addicts within a hospital setting. A token economy program was assessed to determine the effectiveness of such a program with patients in an outpatient methadone maintenance clinic setting. Target behaviors isolated for modification were patient fee-paying and appointment-keeping behaviors. Subjects were 70 patients who participated daily in a methadone maintenance clinic program. One token, a wallet-size card redeemable for future "late" doses of methadone, was awarded to each patient paying his fee on time or keeping his appointment during each treatment period. Results indicated that significantly more clinic fees were paid on time and appointments kept during treatment periods. (Author)

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The Use of a Token Economy to Improve Patient Responsibility in an Outpatient Methadone Maintenance Clinic

John S. Kelly
San Jose State University

Richard J. Gambatese
Santa Clara County Methadone Treatment Program

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Providing supportive services to clients of outpatient drug abuse clinics has not been an easy task. Most heroin addicts seek methadone maintenance treatment primarily to deal with their physiological dependency on narcotics. Patients seem most cooperative in receiving medication. This is most likely due to their desire to avoid the discomfort of narcotic withdrawal, as well as their preoccupation with drug use and the importance placed on drugs as being essential to their "existence." However, many patients are reluctant to confront the psychological and environmental pressures which may have initiated them into their life of addiction. In order to begin dealing with the pathology of their addiction, it is important that the patient make regular contact with individuals equipped to provide supportive services.

Given the working schedule of most outpatient clinics, it is reasonable to assume that ancillary services would best be provided within a well-structured environment which requires patients to keep individual appointments and adhere to clinic rules and regulations. However, for many clinics, the failure of clients to assume the responsibility for paying clinic fees on time and keeping appointments has hindered the delivery of clinic services, lowered staff morale, and generally disrupted the normal operation of the clinic. A positive change in clients' behavior in these two areas should result in a more efficient delivery of clinic services and an improvement in staff morale. These are important factors in the overall effectiveness of a drug rehabilitation program.

Previous studies (Cheek, Tomarchio, Standen, & Albahary, 1973; Eriksson, Gotestam, Melin, & Ost, 1975) have shown that the use of behavior modification techniques, specifically the use of token reinforcement systems, can produce positive changes in the behavior of heroin addicts within a hospital setting. It was the purpose of the present study to determine whether these same techniques are successful when used in an outpatient methadone maintenance clinic.

This study was designed to determine the effects of a token economy system upon the payment of clinic fees and the keeping of clinic appointments by patients participating in an outpatient methadone maintenance clinic. We employed one subject pool of 70 subjects, who comprised the total patient population of the Mountain View (CA.) Methadone Maintenance Clinic over a 4-month period. These subjects were used to evaluate patient fee paying behavior. Males made up 67% and females 33% of the subjects. The average age of all subjects was 26.

A subset of 35 of the original 70 subjects was used to evaluate patient appointment keeping behavior. These 35 subjects comprised that portion of the original sample which had a minimum of one scheduled appointment with a clinic staff member in each of the 4 months of the study. Males made up 57% and females 43% of the subjects. The average age of these subjects was 27.

Procedure

The personnel in most methadone maintenance clinics are limited in the rewards they are able to provide clients within the clinic setting. This is primarily due to the strict regulations governing the dispensing of this potent drug. There is, however, one area of clinic procedure which is somewhat flexible, namely the hours for dispensing methadone. Patients at the Mountain View Methadone Maintenance Clinic receive medication during the hours of 6:30 to 9:00 a.m. and 3:00 to 4:00 p.m. from Monday through Friday and from 8:00 to 10:00 a.m. on Saturday and Sunday. Patients are able to receive methadone only during these normal dispensing hours, except in rare instances. The ability to receive medication outside of normal dispensing hours is viewed by patients as a desirable privilege. Patients could then occasionally attend the clinic at a more convenient time.

It was expected that the ability to receive an occasional "late dose" of methadone would be viewed by the patients as a reward of sufficient magnitude that some would change their behavior to achieve this privilege. This reward was used in the study as the "pay off" in a token economy system for changing patients' appointment keeping and fee paying behavior.

The study covered a period of four consecutive months. Investigators recorded the number of appointments kept and biweekly fees paid by all subjects during baseline periods which comprised the first and third months of the study. A token economy was introduced at the beginning of the second and fourth months (the experimental periods). A printed announcement describing the procedure for the token economy was given to each subject on the first day of the initial experimental period. The number of appointments kept and biweekly fees paid were likewise recorded.

Tokens were in the form of wallet-size cards bearing the patients' program identification number, expiration date, and the signature of the staff member awarding the token. Tokens were awarded to each patient who was on time for any appointment with a clinic staff member. The token was given to the patient immediately following the completion of the appointment. Similarly, the staff member who collected patient fees awarded tokens for prompt fee paying behavior.

Patients were required to pay a clinic fee of $4.00 twice per month. One token was given for each biweekly cash payment made on time. Two tokens were given for each monthly MediCal payment made on time. In addition, counselors were encouraged to schedule two counseling appointments per month with each patient on their caseload. Additional appointments also were made at various times during each month as were necessary, e.g., crisis situations, physical examinations, and psychiatric evaluations. One token was also given immediately following each appointment kept on time during the experimental periods. Therefore, each patient had the opportunity to earn a minimum of four tokens in each of the two experimental months: two tokens for paying both biweekly fees on time, either by cash or MediCal, and two tokens for keeping the two appointments with his counselor. Additional tokens were earned for any other appointments kept on time during the experimental periods.

One token was redeemable for one late dose of methadone, in accordance with normal clinic procedures. The patient was required to call the clinic dispensary before the close of normal dispensing hours to state that he would be late. He could then receive his late dose anytime up to 1 1/2 hours following the end of the normal dispensing period. The tokens were valid for a period of two months and were surrendered to the dispensing nurse upon receiving the late medication.

The experimental procedure employed was an ABAB reversal of contingencies design (design #8 in Campbell & Stanley, 1966). This design consisted first of utilizing a baseline period followed by the introduction of the experimental treatment for an identical period. Then, a second baseline measure was obtained which in turn was followed by reintroduction of the experimental treatment. Each of the four periods in the design had a duration of one month.

The following data were recorded during each period: (a) ratio of number of fees paid on time to total number of fee payments due, and (b) ratio of number of appointments kept to number of appointments scheduled. These ratios were converted to the appropriate percentages for each subject.

Results

The response measure employed in the data analysis was each subject's average percentage of fees paid on time and appointments kept for the two baseline periods and for the two experimental periods. The means were collapsed and the difference between the combined means was assessed via a t test. Results of this analysis indicated that the token economy improved patients' fee paying behavior by 20.5% over the baseline period ($t = 2.32$, $df = 69$, $p < .025$).

A simple analysis of variance was computed and a highly significant F ratio was obtained ($F = 6.29$, $df = 3,207$, $p < .005$) indicating overall differences between the four months of the study. Subsequent analysis of the months factor for components of trend demonstrated the presence of a significant linear trend in these data ($F = 18.18$, $df = 1,207$, $p < .005$), while quadric and cubic trend components were nonsignificant. These results indicate that a significant increase in patient fee paying behavior occurred over the four months of the study.

The mean percentage of appointments kept on time by the subset of 35 subjects for each of the four periods were likewise computed. The means were collapsed for the two baseline and the two experimental periods respectively, and the differences between the combined means were assessed via a t test. Results of this analysis indicated that the token economy improved patient appointment keeping behavior by 21.2% over the baseline period ($t = 1.92$, $df = 34$, $p < .05$).

A simple analysis of variance was computed and a significant F ratio was also obtained ($F = 3.75$, $df = 3,102$, $p < .025$) indicating overall differences between the four months of the study. Subsequent analysis of the months factor for components of trend demonstrated the presence of a significant linear trend in these data ($F = 7.49$, $df = 1,102$, $p < .01$), while quadric and cubic components failed to reach statistical significance. Results of this analysis demonstrated that there was a significant increase in percentage of appointments kept across the four month period of the study.

Discussion

Research involving the use of token reinforcement systems has been quite extensive. These studies have shown that individual behavior can be modified using operant techniques. A major characteristic of this research has been that virtually all studies were carried out in settings over which the experimenters had a great deal of control over experimental subjects, e.g., hospital mental wards, prisons, and live-in rehabilitation centers (Atthowe & Krasner, 1968; Phillips, Phillips, Fixsen, & Wolf, 1971; Tyler & Brown, 1968). Past studies, on the whole, have failed to explore the use of a contingency program with individuals over whom the experimenters have relatively little control as in various outpatient settings, e.g., drug abuse clinics, alcohol rehabilitation centers, and vocational training programs.

One of the major thrusts of the present study was to attempt the successful implementation of a token economy system in an outpatient setting. This study was designed to utilize standard token reinforcement procedures, used in past studies with inpatient subjects, with subjects participating in the moderately controlled environment of an outpatient methadone maintenance clinic.

The results of this investigation seem to agree, in part, with those of previous research. The findings of significant differences between collapsed mean treatment and baseline periods support the prediction of improved patient fee paying and appointment keeping behavior. The finding of a significant linear trend within groups in both areas provides further support for this prediction.

Ayllon and Azrin (1968) have demonstrated that the use of a token reward system has distinct advantages over a more generalized form of reinforcement, e.g., approval or praise. In addition, some studies (Lindsley, 1956; Ellis, 1962; Metz, 1965) have found that certain subjects are more resistant to the use of operant principles than others. Also, Atthowe and Krasner (1968) suggested that nonresponsiveness may be the result either of a failure to use sufficiently strong reinforcers or of the use of generalized rather than individualized contingencies. In the present study, patients were questioned as to the value of tokens for receiving future "late doses" of methadone. It was decided by both patients and staff that the tokens would be of sufficient worth that some patients would change their behavior to obtain them. A drug abuser's need for immediate gratification and preoccupation for "making deals" may play an important part in his acceptance of a token economy.

Kazdin and Bootzin (1972) have shown that behaviors to be modified can either be generalized over the entire subject population or individualized according to a subject's particular problem. In the present study, behaviors to be modified were selected by staff identification of patient problem areas which were chronic and which applied to a major portion of the patient population. The lack of prompt payment of clinic fees and the missing of appointments with clinic staff members were two major areas which prevented the efficient delivery of clinic services, disrupted the normal operation of the clinic, and contributed to a lowering of staff morale. Upon completion of the four month study period, the clinic staff members agreed that the token economy improved these two problem areas enough to justify the time and effort required to establish the token economy on a permanent basis. Staff members also felt that these improvements, along with their new ability to reward patients personally and immediately for positive behavior change, had improved staff morale.

It has been previously reported that staff training and staff attitudes towards the implementation of a token economy is an important variable in the effectiveness of the reinforcement procedure (Kazdin & Bootzin, 1972). In the present study, all staff members were agreeable to the use of a token economy for changing patient behavior. They were instructed verbally as to the principles of operant conditioning and agreement was reached as to the procedures to be employed in the study. During weekly staff meetings, various problem sregarding the token economy were discussed and feedback was given regarding the progress being made in changing the target behaviors.

In reference to the question of generalization, Ayllon and Azrin (1968) have suggested that behaviors should be selected for modifcation via token economy procedures which are subject to naturally occurring reinforcers in the person's environment. Areas of generalization were not subject to direct study during this current investigation. However, it is likely that fee paying and appointment keeping behavior would certainly be subject to natural reinforcement in the subject's environment outside of the treatment setting.

One area of interest in this investigation was the large difference in number of subjects for the two experimental groups. This difference suggests variability in staff behavior. Since subjects employed for evaluation of appointment keeping behavior were required to have a minimum of one counseling appointment in each of the four months of the study in order to be included in this part of the data analysis, it is apparent that one half of the clinic population did not make or receive counseling appointments in at least one of the four months of the study. This was probably due to the following reasons:

(1) Counselors were hesitant to make counseling appointments with certain members of their caseload.

(2) Certain patients were resistant to counseling and avoided contact with their counselor.

(3) Clinic hours of operation did not allow counseling sessions with certain patients, particularly those who were employed.

The study reported by Cheek et al. (1973) showed the successful implementation of a behavior modification system with individuals participating in an inpatient methadone maintenance program. Also, Eriksson et al. (1975) used a token economy to change effectively the behavior of heroin addicts within a hospital setting. The results of the present study would suggest that these same techniques can be used effectively with patients participating in an outpatient methadone maintenance clinic.

It would appear from this investigation that further research into the use of a token economy in outpatient treatment programs is warranted. Alcohol treatment programs, community mental health clinics, and other drug abuse programs might find a token reinforcement system a valuable means of modifying patient problem behavior which is particular to their individual program.

It might be valid also to utilize a token economy which deals with individual patient behavioral problems rather than general problem areas. Tokens could be used to reward patient behavior which occurs as a result of a contract between the patient and his counselor.

Future studies might also investigate the areas of stimulus and response generalization. In addition, since outpatients are interacting with their environment while in treatment, follow-up data can be obtained more easily which would help to determine whether treatment effects generalize to nontreatment settings.

The results of this study seem to indicate that the use of a token economy might serve as a viable method of improving the management of methadone clinics throughout the country. If the efficiency of providing treatment services can be improved, a resultant increase in socially acceptable behavior along with a decrease in illicit drug use may be exhibited by patients of these clinics. This is certainly an area for further consideration.

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